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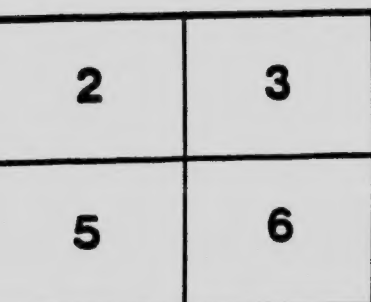
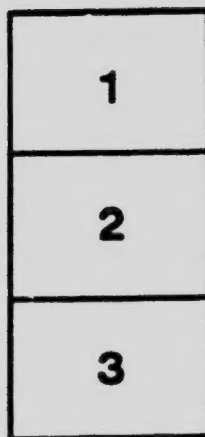
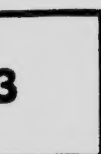
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Map
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REPORT
OF
THOS. H. DUNN, C.E.
OF THE
WATER POWER BRANCH OF
THE DEPARTMENT OF
THE INTERIOR

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J. B. CHALLIES, Esq.,
Supt. Water Power Branch
Department of Interior,
Ottawa, Ont.

SIR:—

I beg to submit the following report based on information gained from my examination of the locality and maps and gaugings made by the Railway Belt Hydrographic Survey during the Season of 1912.

General Description

The Columbia River takes its rise in Columbia Lake about latitude 50, 15 North, and Longitude 150, 50 West. From Columbia Lake it flows North West through Lake Windermere and continues in the same direction, generally past the town of Golden, situated on the main line of the Canadian Pacific Railway at the junction of the Kicking Horse River with the Columbia.

The valley is bounded by the Rocky Mountains on the East side, and the Selkirk Mountains on the West, lying in parallel ranges. Running through this great valley is a low flat strip of land of considerable uniformity, averaging about a mile in width and extending from Lake Windermere to a point near Donald. At extremely high water this is virtually the bed of the Columbia River, for it is practically covered with water at such times, although no doubt, there is but little velocity outside of the low water channels, while at extreme low water the whole flat is dry, and the river winds through this flat by many and devious channels, being confined chiefly to the main channel. Adjoining the flat on both sides are high dry benches which have the most part steep sides next the river and which shed little or no water, not getting enough from the scant rainfall to satisfy the thirsty soil.

The range on the East is narrow and precipitous and its Eastern slope feeds the Kootenay River which parallels the Columbia for about sixty miles of its course and at a distance of only about twelve miles to the East, but flowing in the opposite direction. From these conditions

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it will be readily seen that there can be few creeks on the East side flowing to the Columbia. There are none of importance within the railway belt South of Golden. The West side of the range is more broken and the creeks are longer and of course larger. Canyon creek, small as it is, is the only tributary of any importance within this portion of the railway belt.

South of the railway belt there are some good sized creeks of which the most important are, Spillamacheen, Bugaboo, No. 2, Horse Thief and Toby. Spillamacheen, although situated within the railway belt, enters the Columbia just South of the Southern limit of the belt, these are all on the West side and with Canyon Creek and the discharge from Windermere Lake, constitute the chief supply of the Columbia South of Golden. The discharge from Windermere Lake is not great and when Toby Creek is in flood the water flows back into the Lake, which was the condition at the time of my visit.

The water of all the Creeks is heavily charged with silt, a large percent of which is deposited on entering the comparatively sluggish waters of the Columbia. This has resulted in the raising of a small section of the bottom lands above high water at and near the mouths of Toby, Horse Thief and Canyon Creeks.

Transportation

The Columbia Valley is entered at the main line of the Canadian Pacific Railway at Golden which is situated at the confluence of the Kicking Horse with the Columbia. From Golden the C. P. R. follows the valley of the Columbia down Stream as far as Beaver Mouth. A branch of the C. P. R. known as the Kootenay Central Railway, is under construction between Golden and some point of the Crows' Nest Branch. This line follows the Columbia on the East side and the rails are laid about half of the way from Golden to Windermere Lake. In a year or two, years at most, this road will be in full operation.

(This Railway is now completed.)

There is a good highway along the East side of the

Valley from Golden to Athalmer. This road continues on South and down the Kootenay valley to Cranbrook on the Crows' Nest Branch. There it is also a good road which extends down the West side of the Columbia from Invermere. An automobile highway from Banff to Windermere is under construction and is well on the way towards completion. This road traverses the Kootenay valley and enters the Columbia Valley by way of Sinclair Pass and when completed will form one of the links of the much talked of National Highway to the Coast and will form a very attractive feature.

The Columbia is navigable between Golden and Windermere Lake for flat bottomed boats with stern wheels, such as are shown in the attached photographs, during the greater part of the Season. At the low water period, however, there is considerable difficulty on account of numerous sand bars. It is quite true, as stated in the report of Canavan and Mitchell, that some of the bends in the River channel are very short and no doubt are a great trouble and annoyance in navigation. There are six boats plying on the River from Golden South.

The navigation of this portion of the River is at present a very important matter, and is bound to become more and more important as the valley becomes settled until the Kootenay Central comes into operation, and even then it will be essential for the West side unless the bottoms are reclaimed as there are at present few places where a crossing could be constructed. With the unwatering of the flats, however, this difficulty would largely disappear.

Settlement and Agriculture

The principal town and the only one of any size is Golden, with a population of about 2,000. Lumbering and construction has been the chief employment of the people, agriculture holding a very important place. However the filling of the larger valleys nearer the Coast and the scarcity of lands suitable for agricultural purposes has directed attention to the upper Columbia

valley and during the last few years a number of settlers have taken up land upon the East side of the valley.

The very light rainfall in the upper valley, which makes irrigation of the benches necessary, has more than anything else retarded settlement because irrigation is too difficult and expensive for individual effort in this land of sloping benches, and where the water supply must be drawn from deep and sometimes remote canyons. This condition is now being remedied by large irrigation companies, who have acquired lands in the valley and are carrying on extensive improvements preparatory to putting their lands on the market.

I visited the Townsite of the Columbia Valley Orchards Lands Company, where I found a large corps of laborers at work clearing the land of all trees, stumps and stones and constructing a complete system of irrigation for a large tract which it is proposed to plant in apples or such orchard or other fruits as may be suitable to the climate. Considerable land on this tract is being plowed this year.

Several townsites have been laid out in the valley and such small places as Athalmer, Invermere and Wilbur have a considerable number of houses. The largest of these is Athalmer, which is situated at the foot of Lake Windermere.

It seems quite certain that with the completion of the Kootenay Central railway and perfecting of the plans of the Irrigation Companies, the valley will receive a considerable influx in population.

With the settlement of the benches will come a strong demand for the reclamation of the bottom lands for the growth of hay. The local supply of hay has been an almost minus quantity and much hay is bought from outside points. The price varies some but is always high, being from \$2.00 to \$45.00 per ton and even higher at times.

Climate

During the few days of my visit the weather was delightful, and I am given to understand that this is the prevailing condition during the summer.

Value

The bench lands are suitable for the cultivation of fruits. Where they have been cleared, sub-divided, placed under irrigation and otherwise improved, they are held at from \$175.00 to \$300.00 per acre. The bottom lands are of course alluvial and consist of a very fine soil. Men of much experience in the Columbia valley say that this will make first class land, very productive, and will be worth fully as much, if not more than, the irrigated lands adjoining.

Reclamation Dyking

Of all the plans suggested for reclaiming these lands, dyking, combined with drainage must be the method made use of, if any degree of success is to be attained within a reasonable time. Nevertheless, since the area to be treated is very long, and the main channel of the river cuts the flats into many sections by its meanderings, each section will have to be dealt with separately and receive such treatment as would appear to be necessary from a study of all the conditions at that point.

All of which is Respectfully Submitted,

(Sgd.) THOMAS H. DUNN, C. E.

Dated at WINNIPEG, June 14, 1913.

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